

L13 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:413851 CAPLUS
 DN 138:404342
 TI Hydrogen production from oxygenated hydrocarbons by vapor and condensed liquid-phase reforming for fuel cell use
 IN Cortright, Randy D.; Dumesic, James A.
 PA Wisconsin Alumni Research Foundation, USA
 SO U.S. Pat. Appl. Publ., 30 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003099593	A1	20030529	US 2001-998552	20011129
	US 6699457	B2	20040302		
	CA 2467443	AA	20030605	CA 2002-2467443	20021127
	WO 2003045841	A1	20030605	WO 2002-US38180	20021127
	WO 2003045841	C1	20040304		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003170171	A1	20030911	US 2002-306258	20021127
	EP 1458645	A2	20040922	EP 2002-804080	20021127
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	BR 2002014560	A	20041109	BR 2002-14560	20021127
	JP 2005510437	T2	20050421	JP 2003-547304	20021127
	US 2004022723	A1	20040205	US 2003-632245	20030801
PRAI	US 2001-998552	A	20011129		
	US 2002-306258	A	20021127		
	WO 2002-US38180	W	20021127		

AB Disclosed is a method of producing hydrogen from oxygenated hydrocarbon reactants, such as glycerol, glucose, or sorbitol. The method can take place in the vapor phase or in the condensed liquid phase. The method includes the steps of reacting water and a water-soluble oxygenated hydrocarbon having at least two carbon atoms, in the presence of a metal-containing catalyst. The catalyst contains a metal selected from the group consisting of Group VIII transitional metals, alloys thereof, and mixts. thereof. The disclosed method can be run at lower temps. than those used in the conventional steam reforming of alkanes.

(FILE 'HOME' ENTERED AT 15:28:23 ON 20 JUN 2005)

FILE 'REGISTRY' ENTERED AT 15:28:44 ON 20 JUN 2005

L1	1 S WATER/CN
L2	1 S HYDROGEN/CN
L3	1 S SORBITOL/CN
L4	3 S RIBOSE/CN
L5	1 S ARABINOSE/CN
L6	2 S XYLOSE/CN
L7	1 S LYXOSE/CN
L8	1 S XYLITOL/CN
L9	1 S ARABINITOL/CN
L10	1 S GLYCEROL/CN

FILE 'CAPLUS, CAOLD' ENTERED AT 15:32:28 ON 20 JUN 2005

L11	20533 S L1 AND L2
L12	108 S L11 AND RHENIUM?
L13	1 S L12 AND L3
L14	0 S L12 AND L4
L15	0 S L12 AND L5
L16	0 S L12 AND L6
L17	0 S L12 AND L7
L18	0 S L12 AND L8
L19	0 S L12 AND L9
L20	0 S L12 AND SUGAR
L21	74 S L12 AND CATALYST
L22	34 S L21 AND NICKEL
L23	14 S L22 AND SUPPORT
L24	14 DUP REM L23 (0 DUPLICATES REMOVED)
L25	0 S L24 AND SUGAR
L26	5 S L24 AND ALCOHOL
L27	74363 S WATER (P) HYDROGEN
L28	150 S L27 AND RHENIUM?
L29	0 S L28 AND SUGAR
L30	47 S L28 AND NICKEL
L31	35 S L30 AND CATALYST
L32	1 S L31 AND L3
L33	0 S L32 NOT L13
L34	33319 S RHENIUM
L35	141 S L11 AND RE
L36	0 S L35 AND L3
L37	0 S L35 AND L4
L38	0 S L37 AND L5
L39	0 S L35 AND L6
L40	0 S L39 AND L7
L41	0 S L35 AND L7
L42	0 S L35 AND L8
L43	0 S L35 AND L9
L44	150 S L27 AND L34
L45	571 S L27 AND RE
L46	1 S L44 AND L3
L47	0 S L32 NOT L46
L48	0 S L44 AND L4
L49	0 S L44 AND L5
L50	0 S L44 AND L6
L51	0 S L44 AND L7
L52	0 S L44 AND L8
L53	0 S L44 AND L9
L54	74 S ?RHENIUM? (P) WATER (P) HYDROGEN
L55	0 S L54 AND L3
L56	0 S L54 AND L4
L57	0 S L54 AND L5
L58	0 S L54 AND L6
L59	0 S L54 AND L7
L60	0 S L54 AND L8
L61	0 S L54 AND L9
L62	12 S L54 AND NICKEL

L63	12 DUP REM L62 (0 DUPLICATES REMOVED)
L64	5 S L63 AND SUPPORT
L65	7 S L63 NOT L64

L80 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:792073 CAPLUS
DN 141:425556
TI Effect of tin on Ru-B/ γ -Al₂O₃ **catalyst** for the
hydrogenation of ethyl lactate to 1,2-propanediol
AU Luo, Ge; Yan, Shirun; Qiao, Minghua; Zhuang, Jihua; Fan, Kangnian
CS Department of Chemistry and Shanghai Key Laboratory of Molecular Catalysis
and Innovative Materials, Fudan University, Shanghai, 200433, Peop. Rep.
China
SO Applied Catalysis, A: General (2004), 275(1-2), 95-102
CODEN: ACAGE4; ISSN: 0926-860X
PB Elsevier B.V.
DT Journal
LA English
AB Amorphous Ru-B/ γ -Al₂O₃ **catalyst**, prepared by a reductant
impregnation method, was employed for the **hydrogenation** of Et
lactate to 1,2-propanediol. The effects of Sn on composition, properties,
thermal stability and activity of the **catalyst** were studied
using XRD, TEM, H₂-TPD and XPS. The Sn Addition significantly increased the
Et lactate conversion and the selectivity to 1,2-propanediol.
RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:76326 CAPLUS
 DN 136:264814
 TI Kinetics of Aqueous-Phase **Hydrogenation** of Lactic Acid to
Propylene Glycol
 AU Zhang, Zhigang; Jackson, James E.; Miller, Dennis J.
 CS Departments of Chemical Engineering and Chemistry, Michigan State
 University, East Lansing, MI, 48824, USA
 SO Industrial & Engineering Chemistry Research (2002), 41(4), 691-696
 CODEN: IECRED; ISSN: 0888-5885
 PB American Chemical Society
 DT Journal
 LA English
 AB The kinetics of aqueous-phase **hydrogenation** of lactic acid to
 propylene glycol over a 5 wt % Ru/carbon catalyst have been characterized
 in a stirred batch reactor. A thorough anal. of mass-transfer resistances
 based on measurements of **hydrogen** solubility and gas-liquid
 mass-transfer coeffs., application of correlations in the literature, and
 intraparticle diffusion calcns. show that mass-transfer resistances are
 negligible at the temps. (403-423 K) and **hydrogen** pressures
 (6.8-13.6 MPa) studied. A Langmuir-Hinshelwood (L-H) model is proposed
 and used to fit lactic acid conversion kinetics. The kinetic model
 provides insight into the catalytic reaction mechanism and forms the basis
 for design and further investigation of the aqueous-phase
hydrogenation.
 RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:898458 CAPLUS
 DN 136:263513
 TI Aqueous-phase **hydrogenation** of biomass derived lactic acid to
propylene glycol
 AU Zhang, Zhigang
 CS Michigan State Univ., East Lansing, MI, USA
 SO (2000) 201 pp. Avail.: UMI, Order No. DA3000641
 From: Diss. Abstr. Int., B 2001, 62(1), 396
 DT Dissertation
 LA English
 AB Unavailable

L87 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:651042 CAPLUS
 DN 136:21176
 TI Aqueous-phase **hydrogenation** of lactic acid to **propylene**
glycol
 AU Zhang, Z.; Jackson, J. E.; Miller, D. J.
 CS Department of Chemical Engineering, Michigan State University, East
 Lansing, MI, 48824, USA
 SO Applied Catalysis, A: General (2001), 219(1-2), 89-98
 CODEN: ACAGE4; ISSN: 0926-860X
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB The metal-catalyzed **hydrogenation** of lactic acid to propylene
 glycol (PG) in aqueous solution was investigated in a laboratory-scale stirred batch
 reactor. Ru/C was identified as an active catalyst for the reaction, with
 nearly complete conversion at 100-170° and H pressure 7-14 MPa.
 Selectivity to PG is >90% at 95% lactic acid conversion.
 RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2000:368184 CAPLUS
 DN 133:5109
 TI Condensed-phase catalytic **hydrogenation** of lactic acid to
propylene glycol

IN Zhang, Zhigang; Miller, Denis J.; Jackson, James E.
PA Michigan State University, USA
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000030744	A1	20000602	WO 1999-US27421	19991119
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6403844	B1	20020611	US 1999-442285	19991119
PRAI	US 1998-109712P	P	19981124		

AB The present invention provides a process for production of propylene glycol with high yield and selectivity in an aqueous reaction mixture of lactic acid and **hydrogen** with an essentially pure elemental ruthenium catalyst on an inert support at elevated pressure and temperature. In particular, the present invention provides a process wherein the catalyst is a ruthenium salt deposited on a microporous support, reduced to ruthenium on the support with **hydrogen**, and oxidized in the presence of oxygen to provide a ruthenium oxide surface on the surface of the ruthenium metal and wherein the catalyst is maintained in the surface oxidized state until it is reduced with **hydrogen** prior to the reaction process.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

FILE 'REGISTRY' ENTERED AT 15:50:25 ON 20 JUN 2005

L66	1 S PROPYLENE GLYCOL/CN
L67	1 S LACTATE/CN
L68	1 S LACTIC ACID/CN
L69	1 S METHYL LACTATE/CN
L70	1 S ETHYL LACTATE/CN

FILE 'CAPLUS, CAOLD' ENTERED AT 15:53:34 ON 20 JUN 2005

L71	836 S L66 AND L68
L72	6 S L71 AND L2
L73	6 DUP REM L72 (0 DUPLICATES REMOVED)
L74	2 S L66 AND L67
L75	0 S L74 AND L2
L76	50 S L66 AND L69
L77	2 S L76 AND CATALYST
L78	201 S L66 AND L70
L79	11 S L78 AND CATALYST
L80	6 S L79 AND HYDROGEN?
L81	1970 S 1,3-PROPANEDIOL/TI
L82	10 S L81 AND L68
L83	1 S L82 AND HYDROGEN?
L84	2206 S PROPYLENE GLYCOL/TI
L85	20 S L84 AND L68
L86	94 S L84 AND HYDROGEN?
L87	4 S L85 AND HYDROGEN?
L88	0 S L81 AND L69
L89	0 S L81 AND L70
L90	1 S L84 AND L69
L91	3 S L84 AND L70